

IN THE CLAIMS

Please cancel claims 15, 17, 20, 22, 28, 29 and 48 thru 50 without prejudice or disclaimer, and amend claims 1 thru 14, 16, 18, 19, 21, 23 thru 27, 30 thru 44 and 47, as follows:

1        1. (Currently Amended) An apparatus, comprising:

2              a first part including a bore;

3              an eccentric sleeve mounted in said bore of said first part, said eccentric sleeve  
4              including an outer surface corresponding to the bore of said first part, and said eccentric  
5              sleeve including a bore which is parallel to and not coaxial with the outer surface of the  
6              eccentric sleeve; and

7              a second part comprising a pin corresponding to the bore in said eccentric sleeve,  
8              said pin being provided for insertion [[in]] into the bore in said eccentric sleeve.

1        2. (Currently Amended) The apparatus of claim 1, further comprising:

2              a scuring securing means passing through said first part, the securing means for  
3              contacting the outer surface of said eccentric sleeve.

1        3. (Currently Amended) The apparatus of claim 2, further comprised of said  
2              securing means comprising a set screw passing through said first part.

1        4. (Currently Amended) The apparatus of claim 2, further comprised of said

2 securing means comprising:

3 a ball member for contacting the outer surface of said eccentric sleeve; and

4 a set screw passing through said first part, [[with]] an end of said set screw  
5 contacting said ball member.

1 5. (Currently Amended) The apparatus is claimed in of claim 2, further comprised  
2 of said first part comprising a piston, and said second part further comprising a seal tube,  
3 [[with]] an end of said pin being provided for insertion [[in]] into said seal tube.

1 6. (Currently Amended) The apparatus of claim 1, further comprised of said first  
2 part comprising a piston, and said second part further comprising a seal tube, [[with]] an  
3 end of said pin being provided for insertion [[in]] into said seal tube.

1 7. (Currently Amended) An apparatus, comprising:

2 a first part including a bore;

3 a sleeve mounted in said bore of said first part, said sleeve including an outer  
4 surface corresponding to the bore of said first part, and said sleeve including a bore; and

5 a second part comprising a pin corresponding to the bore in said sleeve, said pin  
6 being provided for insertion [[in]] into the bore in said sleeve.

1 8. (Currently Amended) The apparatus of claim 7, further comprising:

2 [[a]] securing means passing through said first part, said securing means for

3 contacting the outer surface of said sleeve.

1 9. (Currently Amended) The apparatus of claim 8, ~~further comprised of~~ said  
2 securing means comprising a set screw passing through said first part.

1 10. (Currently Amended) The apparatus of claim 8, ~~further comprised of~~ said  
2 securing means comprising:

3 a ball member for contacting the outer surface of said sleeve; and  
4 a set screw passing through said first part, [[with]] an end of said set screw  
5 contacting said ball member.

1 11. (Currently Amended) The apparatus of claim 8, ~~further comprised of~~ said first  
2 part comprising a piston, and said second part further comprising a seal tube, [[with]] an  
3 end of said pin being provided for insertion [[in]] into said seal tube.

1 12. (Currently Amended) The apparatus of claim 7, ~~further comprised of~~ said first  
2 part comprising a piston, and said second part further comprising a seal tube, [[with]] an  
3 end of said pin being provided for insertion [[in]] into said seal tube.

1 13. (Currently Amended) An apparatus, comprising:  
2 a mount having an aperture;  
3 a piston adjacent to said mount and having an aperture, said piston being of a

4 shape for defining a movement direction of the piston;

5 a shear pin [[with]] having one end of the shear pin press fit in an into the aperture  
6 in said mount and [[an]] another end of the shear pin inserted in an into the aperture in  
7 said piston, [[for]] said shear pin restraining the piston relative to the mount;

8 a hammer region formed on said piston and located in [[a]] the movement  
9 direction of motion of said piston; [[and]]

10 a strikable part mounted in the movement direction of motion of the piston from  
11 said hammer region and separated from the hammer region by a gap, said strikable part  
12 sealing a flowpath of gas in said apparatus, said hammer region [[for]] striking said  
13 strikable part upon movement of the piston in the movement direction of motion through  
14 said gap; and

15 a stationary part connected to said strikable part by a shearable link, said strikable  
16 part being separated from said stationary part upon being struck by said hammer region  
17 with an input force for shearing said shearable link;

18 said shear pin being constructed to be shearable with less input force than the input  
19 force for shearing said shearable link so that the gas does not flow in the apparatus when  
20 said shear pin is initially sheared, but gas does flow when both said shear pin and said  
21 shearable link are sheared and said strikable part is separated from said stationary part.

1 14. (Currently Amended) The apparatus of claim 13, further comprised of said  
2 strikable part being mounted to said mount.

Claim 15. (Canceled)

1       16. (Currently Amended) The apparatus of claim 15, further comprised of: 13,  
2       said stationary part being connected to said mount.

Claim 17. (Canceled)

1       18. (Currently Amended) An apparatus, comprising:  
2       a mount having an aperture;  
3       a piston adjacent to said mount and having an aperture, said piston being of a  
4       shape for defining a movement direction of the piston;  
5       a shear pin [[with]] having one end of the shear pin inserted in an into the aperture  
6       in said mount and another end of the shear pin inserted in an into the aperture in said  
7       piston, [[for]] said shear pin restraining the piston relative to the mount;  
8       a hammer region formed on said piston and located in [[a]] the movement  
9       direction of motion of said piston; [[and]]  
10      a strikable part mounted in the movement direction of motion of the piston from  
11      said hammer region and separated from the hammer region by a gap, said strikable part  
12      sealing a flowpath of gas in said apparatus, said hammer region [[for]] striking said  
13      strikable part upon movement of the piston in the movement direction of motion through  
14      said gap, and said shear pin being positioned in spaced relation apart from said strikable  
15      part in the movement direction of motion of said piston; and

16           a stationary part connected to said strikable part by a shearable link, said strikable  
17           part being separated from said stationary part upon being struck by said hammer region  
18           with an input force for shearing said shearable link;  
19           said shear pin being constructed to be shearable with less input force than the input  
20           force for shearing said shearable link so that the gas does not flow in the apparatus when  
21           said shear pin is initially sheared, but gas does flow when both said shear pin and said  
22           shearable link are sheared and said strikable part is separated from said stationary part.

1           19. (Currently Amended) The apparatus of claim 18, further comprised of said  
2           strikable part being mounted to said mount.

Claim 20. (Canceled)

1           21. (Currently Amended) The apparatus of claim 20, further comprised of: 18,  
2           said stationary part being connected to said mount.

Claim 22. (Canceled)

1           23. (Currently Amended) An apparatus, comprising:  
2           a mount having an aperture;  
3           a piston adjacent to said mount and having an aperture, said piston being of a  
4           shape for defining a movement direction of the piston;

5           a shear pin [[with]] having one end of the shear pin inserted in an into the aperture  
6        in said mount and another end of the shear pin connected to said piston through a sleeve,  
7        [[for]] said shear pin restraining the piston relative to the mount;

8           a hammer region formed on said piston and located in [[a]] the movement  
9        direction of motion of said piston; and

10          a strikable part mounted in the movement direction of motion of the piston from  
11        said hammer region and separated from the hammer region by a gap, said hammer region  
12        [[for]] striking said strikable part upon movement of the piston in the movement direction  
13        of motion through said gap;

14           said sleeve comprising an outer surface and an eccentric bore surrounded by said  
15        outer surface for receiving said shear pin, said eccentric bore being parallel to and not  
16        coaxial with the outer surface of said sleeve

1           24. (Currently Amended) The apparatus of claim 23, further comprised of said  
2        strikable part being mounted to said mount.

1           25. (Currently Amended) The apparatus of claim 23, further comprising:  
2           a stationary part connected to said strikable part by a shearable link, said strikable  
3        part [[for]] being separated from said stationary part upon being struck by said hammer  
4        region with an input force for shearing said shearable link.

1           26. (Currently Amended) The apparatus of claim 25, further comprised of said

2 stationary part being connected to said mount.

1           27. (Currently Amended) The apparatus of claim 25, ~~further comprised of said~~  
2 ~~strikable part sealing a flowpath of gas in said apparatus, said shear pin being constructed~~  
3 ~~to be shearable with less input force than the input force for shearing said shearable link~~  
4 ~~so that the gas does not flow in the apparatus when said shear pin is initially sheared, but~~  
5 ~~gas does flow when both said shear pin and said shearable link are sheared and said~~  
6 ~~strikable part is separated from said stationary part.~~

Claims 28-29. (Canceled)

1           30. (Currently Amended) A pyrovalve, comprising:  
2           a housing including a bore;  
3           a pyrotechnic initiator mounted in an upper portion of said housing;  
4           a seal tube mounted in, and extending out [[from]] of, said housing, ~~with an axis of~~  
5 ~~the said seal tube [[being]] having an axis positioned perpendicular to an axis of the bore~~  
6 ~~of said housing, said seal tube further comprising a shearable cap disposed on an end of~~  
7 ~~said seal tube and located inside the housing; and~~  
8           a piston located inside [[in]] the bore of said housing so as to define a direction of  
9 motion [[for]] of the piston[[,]];  
10          said piston comprising:  
11           a hollow formed in a side of the piston, said hollow [[for]] receiving

12 said shearable cap, said hollow being larger in cross-section than the shearable cap so as  
13 to define a gap between an overhang of the piston and said shearable cap; and  
14 a shear pin connecting said shearable cap to said piston through a  
15 sleeve[,] for restraining play in said piston.

31. (Currently Amended) The pyrovalve of claim 30, further comprising: wherein said shear pin has a first portion of said shear pin for insertion into an aperture in said shearable cap;

said piston including a bore [[for]] surrounding said sleeve, said shear pin having  
including a second portion of the shear pin not located in said aperture of the shearable  
cap;

said pyrovalve further comprising a sleeve for insertion into the bore of said piston, said sleeve including an outer surface corresponding to said bore of said piston, [[and]] said sleeve including a bore corresponding to the second portion of the shear pin, said sleeve being [[and]] oriented parallel to and not coaxial with the outer surface of the sleeve: [[and]]

12 said second portion of said shear pin being provided for insertion into said bore of  
13 said sleeve.

32. (Currently Amended) A pyrovalve, comprising:

a housing including a bore;

a pyrotechnic initiator mounted in an upper portion of said housing;

4           a seal tube mounted in, and extending out [[from]] of, said housing, with an axis of  
5       the said seal tube being positioned having an axis perpendicular to an axis of the bore of  
6       said housing, said seal tube further comprising a shearable cap disposed on an end of said  
7       seal tube and located inside the housing;

8           a piston located inside [[in]] the bore of said housing so as to define a direction of  
9       motion for the piston[[,]];:

10          said piston comprising:

11            a hollow formed in a side of the piston, said hollow [[for]] receiving  
12        said shearable cap, said hollow being larger in cross-section than the shearable cap so as  
13        to define a gap between an overhang of the piston and said shearable cap; and

14            a shear pin press fit [[in]] into an aperture of said shearable cap and  
15        for being coupled to said piston[[,]] for restraining play in said piston.

1           33. (Currently Amended) The pyrovalve of claim 32, further comprising: wherein  
2       said shear pin has a first portion of said shear pin for insertion into an aperture in said  
3       shearable cap;

4           said piston including a bore [[for]] surrounding a second portion of the shear pin  
5       not located in said aperture of the shearable cap;

6           said pyrovalve further comprising a sleeve for insertion into the bore of said  
7       piston, said sleeve including an outer surface corresponding to said bore of said piston,  
8       [[and]] said sleeve including a bore corresponding to the second portion of the shear pin,  
9       said sleeve being [[and]] oriented parallel to and not coaxial with the outer surface of the

10       sleeve; [[and]]

11           said second portion of said shear pin being provided for insertion into said bore of  
12        said sleeve.

1           34. (Currently Amended) The pyrovalve of claim 32, further comprising: wherein  
2        said shear pin having a first portion of said shear pin for insertion into an aperture [[in]]  
3        of said shearable cap;

4           said piston including a bore [[for]] surrounding a second portion of the shear pin  
5        not located in said aperture of the shearable cap;

6           said pyrovalve further comprising a sleeve for insertion into the bore of said  
7        piston, [[and]] said sleeve including a bore corresponding to the second portion of the  
8        shear pin; [[and]]

9           said second portion of said shear pin being provided for insertion into said bore of  
10      said sleeve.

1           35. (Currently Amended) A method for restraining free play in an apparatus,  
2        comprising the steps of:

3           providing a first part including a bore;

4           mounting a sleeve in said bore of said first part, said sleeve including an outer  
5        surface corresponding to said bore of said first part, [[and]] said sleeve including a bore  
6        surrounded by said outer surface; and

7           inserting a pin into the bore in said sleeve.

1           36. (Currently Amended) The method of claim 35, further comprising the steps

2       of:

3           passing a securing [[means]] device through said first part; and

4           contacting an outer surface of said sleeve [[by]] with said securing [[means]]

5       device so as to restrain free play in said first part.

1           37. (Currently Amended) The method of claim [[37]] 36, further comprising the

2       steps of:

3           providing a second part; and

4           inserting an end of said pin into said second part[[,]] so as to restrain free play in

5       said first part.

1           38. (Currently Amended) The method of claim 35, further comprising the steps

2       of:

3           providing a second part; and

4           inserting an end of said pin into said second part[[,]] so as to restrain free play in

5       said first part.

1           39. (Currently Amended) The method of claim 38, further comprising the step of:

2       providing the second part with a bore;

3       press fitting an end of said pin into [[a]] the bore of said second part; an end of

4        said pin, and

5        [[a]] coupling said second part to said first part through by means of said pin.

1        40. (Currently Amended) The method of claim 35, further comprised of said bore  
2        of said sleeve being parallel to and not coaxial with the outer surface of said sleeve.

1        41. (Currently Amended) A method for restraining free play, comprising the steps  
2        of:

3        providing a first part including a bore;

4        providing a second part including a bore;

5        press fitting a pin into said bore of said second part; and

6        coupling said first part to said second part through by means of said pin.

1        42. (Currently Amended) A method for restraining free play in an apparatus,  
2        comprising the steps of:

3        providing a mount having an aperture;

4        providing a piston adjacent to the mount, said piston being of a shape for defining  
5        a movement direction of the piston; and

6        inserting an end of a shear pin into [[an]] the aperture [[in]] of the mount and  
7        connecting another end of the shear pin to the piston through a sleeve so as to couple said  
8        mount to said piston, [[for]] thereby restraining the piston relative to the mount.

1           43. (Currently Amended) The method of claim 42, further comprising the  
2       [[steps]] step of:

3           with said piston being restrained relative to the mount, striking a strikable part  
4       with a hammer region formed on the piston in [[a]] the movement direction of motion of  
5       the piston by traversing the piston through a gap separating the hammer region from the  
6       strikable part.

1           44. (Currently Amended) The method of 43, further comprising the step of:  
2       separating the strikable part from a stationary part upon being when the strikable  
3       part is struck by the hammer region of the piston.

1           45. (Original) The method of claim 44, further comprising the step of:  
2       shearing the shear pin by motion of the piston.

1           46. (Original) The method of claim 42, further comprising the step of:  
2       shearing the shear pin by motion of the piston.

1           47. (Currently Amended) A method for the restraining free play in an apparatus,  
2       comprising the steps of:  
3       providing a mount;  
4       providing a piston adjacent to the mount, the piston being of a shape for defining a  
5       movement direction of the piston; [[and]]

6           press fitting an end of a shear pin into the mount and coupling the other another  
7           end of the shear pin to said piston[[],] for restraining the piston relative to the mount;

8           shearing the shear pin by motion of the piston;

9           striking a strikable part mounted in the movement direction of the piston by a  
10          hammer region formed on the piston by moving the piston through a gap separating the  
11          hammer region and the strikable part; and

12          separating the strikable part from a stationary part when the strikable part is struck  
13          by the hammer region;

14          wherein the strikable part seals a flowpath of gas with apparatus until separated  
15          from the stationary part; and

16          wherein the shear pin is sheared by less force than is required to separate the  
17          strikable part from the stationary part so that the gas does not flow through the flowpath  
18          when the shear pin is initially sheared, but only flows through the flowpath when the  
19          strikable part is separated from the stationary part a certain amount of time after shearing  
20          of the shear pin.

Claims 48-50. (Canceled)